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INTRODUCTION

The transfer of military technology is an issue that has only recently been addressed by analysts of foreign affairs and international politics. Previous controversy has been much more concerned with more visible issues like the transfer of military aircraft and precision guided weaponry to third world countries, and the deployment of U.S. nuclear forces in Europe. However, it has slowly become apparent that the transfer of the components of weapons systems and the know-how that is necessary to build these systems involves implications of equal or greater proportions. The transfer of technology is infinitely more difficult to regulate than the transfer of actual weaponry because technology can be disguised as a civilian commodity, its value is often overlooked, and it often appears in the non-tangible forms of information, expert personnel, training programs, and investment. Technology transfer can also be infinitely more dangerous than normal modes of arms transfers because once the technology is purchased or captured, it is relatively easy to reproduce and retransfer. The major force behind this new form of arms transfers has been the American arms industry which has taken on a multinational character in recent decades. The U.S. government has supported or acquiesced in the expansion of technology exports primarily because they serve the needs of the established factions in both industry and

government. This paper will examine the implications of the transfer of military technology and how it has been affected by the changing role of American multinational corporations (MNCs).

I. BACKGROUND

Following the conclusion of the Vietnam War, the Pentagon announced cutbacks in its military procurements. The military production industries, which had been turning out weapons at a record rate, responded by launching aggressive campaigns to sell their surplus to foreign customers. The prevailing fear of diminshing demands and the decline of the entire military sector pushed the American armaments industries into a reliance on international expansion.[1] Furthermore, the easing of Cold War tensions in the early 1970's was another factor that convinced many U.S. defense contractors to look for alternate markets. As U.S. defense budgets decreased, this enormous sector of the American economy had to look to foreign markets to pick up the slack This boom in international sales was facilitated by the Nixon Administration's intensive campaign to line up new customers for U.S. military products abroad. In general, President Nixon's foreign policy encouraged the sale of military equipment as a substitute for military aid programs or direct American military presence in foreign nations. This policy was largely based on the public's reluctance to support any

deployment of U.S. troops which could lead to another Vietnam. As a result of these new foreign policy pronouncements, often referred to as the Nixon Doctrine, many large U.S. armament corporations became multinational in their operations and overall outlook.[2] The advantages of establishing overseas markets, production facilities, and bases of operations were undeniable.

Traditionally, American corporations sold arms abroad through the Department of Defense or with the Department's explicit approval. Today, the D.O.D. still approves traditional transfers of fully assembled weapons. However, as American defense contractors have become multinational, and as they have recently begun to emphasize various forms of joint and cooperative production, the U.S. government has lost much of its control over U.S. military technology. The military MNCs have become a giant social and economic institution that is largely unknown due to the military and corporate secrecy surrounding their operations.[3] This secrecy accounts for the facts that many MNC activities go unnoticed, and the information about their activities is rare. In addition, the MNCs are also largely unregulated due to the inherent difficulties in controlling the extra-territorial activities of American corporations. In fact, many of these companies hide their military operations behind a

civilian facade. These large transnational corporations can easily avoid government controls on their exports by spreading military technology abroad through their civilian subsidiaries.[4]

Nevertheless, many of these corporations find that the U.S. government will, in many instances assist their sales of military goods and services to foreign governments. Despite some policies to the contrary, the D.O.D. has encouraged almost every U.S. arms manufacturer to sell abroad and has become the major sales organization in combating the joint efforts of foreign competitors and their governments.[5] However, the sales that the government is involved with represent only a small portion of American technology transfers. The trend is clearly toward more technology transfers and increased multinationalization of the U.S. defense industry. Jonathon Galloway of M.I.T. argues that, "dependence on foreign sales has been increasing and preconditions exist for furter movement toward multinationalization of production."[6] Clearly, the D.O.D tries to insure the viability of American defense contractors by promoting foreign sales. But at the same time, it has become apparent that this policy can also lead to the dependence of U.S. defense contractors on foreign markets.

In addition, many U.S. defense contractors have launched their own aggressive export campaigns because they recognize that the award of lucrative procurement contracts often depends on the acquisition of sufficient foreign military sales orders. Michael T. Klare of the Institute for Policy Studies explains.

> In order, then, to ensure that a pending FMS order is ultimately awarded to itself, and not to a competitor making the same or similar products many U.S. firms engage in a wide range of overseas promotional activities designed to persuade potential customers to ask for its products by brand name when approaching the U.S. government.[7]

Of course, the same is true with respect to coproduction arrangements and other technology transfers since they have also become an integral part of the competition between arms producers. In fact, the MNCs are even more aggressive in pursuing non-official sales because they don't have the U.S. government promoting those sales. Furthermore, the arms manufacturers use very elaborate sales promotion techniques that sometimes include questionable or illegal practices. For example, bribery of foreign government or military officials appears to be a major factor in the international competition for sales. Over three years time, Northrop Corporation is alleged to have put out $30 million in bribes, which is about equal to its total net income during the same period.[8] It is

clear that MNCs are increasingly transferring U.S. military technology abroad; sometimes with U.S. government assistance, and sometimes by circumventing government controls.

For purposes of definition, the term "arms transfer/sale" will be used to refer to the transfer of any military technology. However, the terms "traditional arms transfer/sale" and "foreign military sales(FMS)," indicate government to government transfers of fully produced weapons and weapon systems. These definitions are consistent with those used by the U.S. government and the sources used in this paper. The term "military technology" includes the actual weapon, spare parts, manufacturing equipment, servicing equipment, electronic and other precision components, computers and microprocessors, patents, consulting services, training services, personnel, and/or any information used to produce, service, or assemble the weapon. An equally broad range of modes are used to transfer this technology. These include physical transfers, licensing of patents and know-how, turn-key projects (sale of all elements needed to establish a production facility), establishment of a foreign subsidiary, purchase of or investment in a foreign corporation, and coproduction agreements in which weapons are produced abroad jointly by the U.S. and the recipient country.[9] Coproduction agreements are of two types: where the U.S. and the client state jointly produce a weapon or its component for the client state's military establishment and the U.S. armed

forces. Coproduction agreements have expanded rapidly in recent years. In 1978, the U.S. had major coproduction agreements with four countries. By 1982, the U.S. had concluded 78 coproduction agreements with 22 countries.[10]

More important, as the competition for proxies between the U.S. and the Soviet Union has increased, the sophistication of the weaponry transferred has gone from simple arms to top-of-the-line, high technology weapons. Since the late 1970s, the U.S. has been willing to provide expensive and sophisticated weapons systems for countries in strategic regions of the world because the American government fears that these nations would otherwise turn to the Soviet Union for military supplies. In addition, in the late 1970s, these sales became economically important as a means of providing balance of trade advantages vis a vis escaping petrodollars. Statistically, in 1983, 1600 U.S. companies were registered with the State Department as exporters of military equipment, and over twenty percent of all American military production was devoted to U.S. foreign military sales.[11] However, it is important to note that these figures show only those arms transfers and coproduction schemes that the U.S. government defines as arms transfers and is aware of. Clearly, government figures will not include the flood of technology that is transferred under the guise of commercial sales or that escapes the eyes of the U.S. government due to its form or means of transfer.

The principal laws governing military technology transfers are the Export Administration Act(EAA) and the Arms Export and Control Act (AECA). The AECA, administered primarily by the Department of State, considers technology transfers to be a variety of arms exports, rather than a separate phenomenon. In fact, the Act only addresses the issue when it states that consideration will be given to coproduction and licensing when such production "best serves the foreign policy, national security, and economy of the U.S."[12] Unlike, traditional foreign military sales, however, there are no guidelines for determining when a technology transfer meets the AECA criteria. The decision is left to the Secretary of State. More importantly, the AECA only reviews those coproduction arrangements that the U.S. is officially involved in. In other words, the AECA doesn't review other forms of technology transfer (i.e. information, training, consulting, investment, etc.), and the act has no jurisdiction over "commercial" projects (i.e. high technology manufacturing and computer transfers) since they don't fall under the government's definition of "arms". Likewise, it is very difficult to apply the AECA to subsidiaries of American MNCs operating abroad. The EAA, administered primarily by the Department of Commerce, has been ineffective at halting transfers of commercial technology that have military applications. The problem in this instance is that D.O.C. jurisdiction inherently contradicts the intent of the EAA

because the purpose of the D.O.C. is to help American industry by promoting trade while the EAA was intended to restrict trade. The problem is much more than a lack of money, personnel, or effective controls. Professor John Deutch explains the futility of the current approach.

> ...even if you put highly qualified, good people in; filled all the recent slots that Commerce has not filled; increase the Enforcement Division, give them more authority, the best people in the world; I don't think that export controls can be properly administered in the DOC.[13]

Even with the stepped up rhetoric against technology leaks to the Soviet Union and the Warsaw Pact countries, the problem, won't be solved unless the Department of Commerce is removed from the regulatory picture. Senator Jake Garn spoke of the complete inadequacy of these export controls in 1983: "As currently administered, export controls serve neither our strategic, our commercial, nor our foreign policy needs. Controls are confusing, incoherently administered, short sighted, and ineffective."[14]

As controversy surrounding technology transfers has intensified, President Reagan has noted that such transfers will receive "special scrutiny." His directives have stated that transfer decisions will take into account such issues as the economic and industrial factors for both the U.S. and other

participating countries, the importantce of arms cooperation with allies, potential third party transfers, and the protection of "sensitive technological and military capabilities."[15] Nevetheless, there are conflicting goals within the government (economic and military) that have not been resolved. The result is that presumption remains with the legality of technology transfers; i.e. they are still nore likely to occur than not. Furthermore, as the international competition among producers intensifies, and as more countries demand coproduction arrangements, U.S. officials have been more likely to grant them. When faced with adamant clients and defense industry officials, the government will usually agreee to coproduce rather than losing the entire sale to another country.[16] The implication is that the advent of technology transfers makes it likely that more weapons will be transferred and that the transfer will include not just the weapons, but the means to reproduce them.

Another factor enabling military technology transfers is the conflicting interests of the executive departments charged with the responsibility of administering export restrictions and arms procurement. Jacques Gansler noted that "In almost all foreign military sales efforts, there are major interdepartmental conflicts."[17] Although the D.O.D encourages arms manufacturers to sell traditional arms under the FMS and foreign military assistance programs, the Department tries to prevent

most transfers of America's most sophisticated military technology. However, the Department of State will often seek to promote these transfers for political and foreign policy purposes notwithstanding D.O.D. objections. In addition, there are conflicts within the Defense Department itself. Those offices that seek to
protect technology and those, like the Defense Security Agency, that seek to promote sales in order to stabilize domestic armament industries are in perpetual disagreement. Finally, there is a major conflict between the D.O.C. which seeks to promote trade, and the D.O.D. which seeks to prevent commercial exports of technology that have military applications. Under the EAA the D.O.D. is charged with the responsibility of making a list of those technologies which are considered critical to advanced military production. The D.O.C. reviews each export license using this Military Critical Technologies List (MCTL) as a guideline. However, since the D.O.C. has the final say on commercial export licenses, political considerations often outweigh Defense Department recommendations. [18] Furthermore, the influence that many large corporations have with governmental departments enables them to transfer technology that has definite military applications and that may threaten U.S. national security. Finally, in those cases where transfers are prohibited, armaments producers will simply use an

alternative mode of transfer in order to circumvent governmental guidlelnes.

It is clear that the armament industries play an important role in the process of arms transfers by encouraging the government to permit major sales and agreements. One reason that large firms strve to increase their foreign sales volume is that these sales enable them to enhance their position in the American market.[19] U.S. defense contractors can increase their production volume and thus lower the unit cost that the U.S. pays for weapons by exporting similar arms. Therefore, American firms often push the Departments of Defense and State to allow major foreign sales, and the bureaucracy is often willing to accede to these demands in order to receive its hardware at reduced prices. Furthermore, American multinational corporations also lobby the U.S. government to implement particular policies which will enable them to operate more efficiently and with more power in client countries.[20] For example, U.S. MNCs have persuaded the U.S. government to allow participation in coproduction arrangements that would not be allowed under the AECA if traditional arms were transferred instead of technology. Sometimes a corporation will encourage licensing and coproduction schemes because in many cases the foreign company involved is really just an overseas division of the home company.[21] The bottom line is that U.S.

policy on technology transfers is heavily influenced by the military-industrial complex (MIC). Decisions and policies of the Defense Department and other relevant government organs are heavily influenced by the armament industries and vice versa. In other words, the D.O.D. will often act in the interest of industry when deciding on technology transfers. This is primarily because the interests of the arms industries usually coincide with the interests of the D.O.D. In general, economic considerations tend to encourage rather than discourage most transfers. It has become clear that there is a consortia of government and multinational firms that together supplies the defense needs of the states of the world. [22] In many cases, one cannot operate without the cooperation of the other.

In the case of traditional sales of arms, the U.S. government has heightened its relationship with the armament producers by acting as their salesman for foreign transfers. The U.S. government has recently begun to assume all contractual and financial responsibilties for official foreign military sales.[23] The government buys arms from U.S. defense contractors, finances them, and arranges their sale and transfer to foreign nations. Many foreign governments prefer this situation because it formally commits the U.S. to stand behind the sales over the long haul. More often than not, these official sales represent a diplomatic

relationship between the U.S. government and that of the client state. The benefit to the companies is that the risk of cancellation and liability is greatly reduced when the government participates. However, recent data indicate that this government intervention can be grossly inefficient and frequently self-defeating.[24] This fact supplies a key motive for the increase in the use of coproduction arrangements and other forms of technology transfer as substitutes for these traditional sales. More often than not, American companies can use their multinationality to avoid government intervention and thus, increase their profits. In the case of major government to government sales of traditional arms, the MNCs have no choice but to use government channels of transfer. However, long-term economic and military considerations are beginning to draw both the arms producers and arms purchasers away from traditional arms sales and towards the transfer of manufacturing technology.

II. BENEFITS

The preceding analysis of the motives for transferring military technology establishes the fact that most parties are involved in that transfer for economic reasons. The MNCs are driven by profit, government agencies are motivated to insure the survival of defense contractors as well as by the

desire to lower the costs for U.S. government arms purchases, and the recipient countries want to buy the technologies that they can not develop on their own. The following section will expand upon these advantages of technology transfer and also look into the political benefits that these transfers accrue.

For at least the short run, traditional sales of military technology serve governmental interests at both the political and economic levels. Michael Klare discusses these motives.

> Although strategic considerations are cited as the principal motive for increased military sales, Pentagon officials acknowledge other compelling reasons: to help secure a favorable balance of trade; to insure full production in the ailing aerospace industry; and to extend the production runs of U.S. weapons and thus to reduce the price Washington pays for its own military hardware.[25]

The sale or production of arms abroad decreases the price the U.S. government pays for its own weapons since the cost of research and development and production start-up is usually passed on to the recipient countries. Furthermore, D.O.D. guidelines allow defense contractors to make a bigger profit on foreign sales than domestic sales which gives the companies an independent motive to search out foreign clients.[26] Additionally, like all exports, military

transfers help the U.S. economy in general. It has been common to justify arms transfers in terms of their ability to ameliorate the balance of payments deficit, to spur increased commercial transactions, to contribute to the viability of the defense industry, to decrease unemployment, and in the case of transfers to Arab states, to help recycle petrodollars.[27] In particular, coporoduction arrangements with developing countries cut down production costs for the U.S. government when components are produced for both the U.S. and the recipient country in the recipient country because labor and other costs are much cheaper abroad.[28] As the armament industry has become multinational in character, the nature of weapons transfers has begun to adjust to the economic realities of the international system. Helena Tuomi, of the Tampere Peace Research Institute, explains.

> The global tendency appears to be that the self-sufficiency and viability of the armaments economy, of even the leading military powers, in particular in the West, is decreasing. It has to adjust to the emerging tendencies in the international division of labor in which the guiding hand of the MNCs is more apparent.[29]

Clearly, economic considerations are forcing the U.S. arms producers to transfer technology and to adopt a multinational outlook at the cost of reduced self-sufficiency.

The short-term survival of the armaments industry is insured by foreign sales. The overriding industry motive for allowing technology transfers is that many American defense contractors are dependent upon their current level of exports for their survival.[30] Although U.S. firms are primarily committed to the domestic market, they have expanded foreign sales whenever Pentagon procurement fails to consume their total output. Klare argues that without such an outlet, "any sustained downturn in Pentagon outlays would cause havoc in the arms industry."[31] It is generally agreed that government supports and inefficiencies have resulted in the many structural problems that plague the armament industries. The rush to new markets is one of the main methods of alleviating these problems which are so threatening to the survival of plants, production lines, and jobs.[32] It is well known that there is an inherent contradiction between the desired self-sufficiency of military industries and the drive for competition and efficiency in a free market arena. Government supports have been used to insure self-sufficiency which has reduced efficiency and has thus created dependency on foreign sales. Finally, as many defense industries take on a growing multinational character, they have become even more dependent on both foreign transfers and their ability to expand into new markets when current markets decline or are saturated.[33] The fact that government officials are aware of

this situation naturally increases the political leverage that the MNCs can muster to support transfers. When government supports are at an all time high, and U.S. defense contractors are in danger of closing plants, government officials can be easily convinced to allow technology transfers.

A second important benefit of military technology transfers is their utility as an instrument of U.S. foreign policy. Technology transfers enhance U.S. prestige and leadership, and maintain open lines of transportation, communication, and economic exchange between countries. Henry Nau, in his book, Technology Transfers and American Foreign Policy, delineates nine specific purposes that technology serves in American foreign relations.

> 1. Strengthens allies against communists and other adversaries.
> 2. Promotes economic growth and stability in developing nations.
> 3. Preempts independent foreign development of technologies with military applications.
> 4. Signals changes in competitive and cooperate relationships with foreign countries.
> 5. Influences internal plicies of foreign states.
> 6. Improves the quality of human and social life in the international system. [paraphrase] [34]

Furthermore, technology transfers affect the recipient country's will to use their capabilities as well as the level of their capabilities by permitting the long-term possession of sophisticated weaponry. Nau notes that, "technology is not just an instrument of power, that is, coercive force; it is also an instrument of influence, or psychological force."[35] Additionally, as with traditional arms, the transfer of military technology to areas where military tensions are high, functions as an alternative to direct American intervention.[36] Finally, a major goal of U.S. foreign policy, mentioned earlier, is to repossess petrodollars by selling OPEC American goods. The major U.S.-produced item demanded by these oil exporting countries is sophisticated American arms. The necessity of recycling these vast amounts of money is much more than a matter of economics. Klare writes.

> Huge concentrations of capital (petrodollars) represent a major threat to international monetary stability. Even $10 billion, if unloaded on the money market all at once, could precipitate a major financial crisis.[37]

A related advantage to transferring technology is based on the value of the information, and the position that the MNCs acquire when dealing with foreign governments. The technological specialization of weapons increases the power

of the arms producers over the political and military authorities in the recipient nations. Because modern arms and technology transfers require spare parts, training aids, and maintenance that can only be obtained from the original supplier, transfers to LDCs give the supplier considerable leverage over the recipient's military options.[38] In addition, arms transfers provide the supplier with continuing access to elites and foreign military leaders who play decisive roles in third world politics. This power is beneficial to the MNCs since leverage allows them to secure favorable conditions for their operations in recipient countries. However, the real leverage is usually exercised by the U.S. government. In general, the dependence on American technology makes belligerents highly vulnerable to pressures from Washington since a piece of advanced weaponry can become useless if one little piece malfunctions.[39] Thus, the U.S. government's power to prevent exports of replacement parts gives them significant leverage over foreign conflicts. For example, during the October 1973 War, Washington and Moscow both used their control over war supplies to force Israel and Egypt to ceasefire. Furthermore, the American government has been able to use the vast information-gathering capabilities of global corporations domiciled in the U.S. for intelligence purposes.[40] MNCs with foreign subsidiaries often have huge data banks that hold

sensitive foreign military information that the U.S. government often finds valuable in executing its foreign policy. The U.S. has also attempted, through extra-territorial control of the trading relations of U.S. subsidiaries, to extend its foreign policy embargoes into the jurisdiction of other states. However, the U.S. government has generally not been effective in this practice. For example, during the civil war in Angola in 1976, a Gulf Oil subsidiary actually turned over several hundred million dollars to the winning side which the U.S. had not recognized as the victor.[41] Most recently, American MNCs have sold military technology to South Africa despite U.S. and U.N. policies that forbid these interactions. In general, the U.S. has very little control over its companies that operate in other countries.

In the case of NATO, technology transfers, especially coproduction arrangements, may serve to increase the efficiency and effectiveness of the NATO military alliance. U.S. strategists have long sought to promote joint arms procurement among Alliance members. Currently, most NATO countries procure or produce their own weapons. As a result there is a waste of money since many countries maintain separate research development, and production facilities. More important, there is no interchangeability between weapon systems. This becomes significant on the battlefield when

access to supplies becomes restricted and production or transportation of spare parts from the producing country is not feasible.[42] Clearly then, more coproduction arrangements between U.S. and European countries would be beneficial since they would promote at least a marginal measure of weapons uniformity. As of this writing, the only major attempt at standardization through coproduction has been the F-16 program carried out by U.S. MNCs in Belgium, Holland, Denmark, and Norway.[43] It would seem that future coproduction arrangements with NATO allies hold out definite strategic and economic benefits.

Another benefit to technology transfers concerns the technology that U.S. firms export to the Soviet Union and the Eastern bloc. While it is not the policy of the American government or American corporations to contribute to Soviet military capabilites, technology with civilian applications often ends up contributing to the Soviet military machine. However, some claim that the amount of transferred technology that has military uses is insignificant and that we should keep selling high technology to the East because it helps to improve East-West relations. Advocates argue that without better relations, it will be impossible to influence Soviet foreign policy and to achieve significant arms control agreements. In the 1970s, the U.S. encouraged sales of computers and advanced electronic equipment to the U.S.S.R.

because it was thought that trade would signal an end to the Cold War and that it would encourage the Soviets to cooperate and negotiate these arms control agreements. Today, although trade in high technology has been limited, some still argue that as long as we protect our technological advances, the Soviet Union will not negotiate with us because they feel that U.S. qualitative superiority will prevent fair negotiations. However, the esperience of the 1970's seems to indicate that the Soviet Union will only take advantage of better relations as a means to build up its military capabilities while the West relaxes its own build-up.

A final and controversial benefit to transferring military technology abroad involves ecnoomic benefits that these transfers may bring to recipient countires. U.S. corporations that set up or license production facilities in developing countries sometimes participate in or demand the construction of necessary infrastructure. These roads, bridges, airports, and telecommunications systems are necessary to facilitate major military production plants. Obviously, this infrastructure has commercial purpopses as well. Thus, technology transfers may bring with them the prerequisites for further industrial development in the civilian sector.[44] Unlike traditional arms sales, technology transfers can help to offset adverse civilian effects of military transfers by furthering the total economic

development of the recipient nation. Perhaps, many LDCs have begun to demand coproduction arrangements because they intend to take advantage of the valuable spin-offs that can result from huge industrial ventures. However, most LDCs lack the financial and capital requirements to take advantage of these potential spin-offs. More often than not, military technology and its accompanying infrastructure remain isolated from the rest of the economy. The potential problems with such a dual-economy will be explored in the next section.

III. DISADVANTAGES

A. Disadvantages to the United States

While most of the benefits of technology transfers are well established, the drawbacks to both the U.S. and to other contries are less apparent. Obviously, the massive scale of current transfers proves that policy makers are primarily driven by the benefits and can readily ignore the disadvantages. However, the benefits of technology transfers tend to be short-term while the disadvantages tend to have long-term and recurring reprecussions.

The first class of problems affect the U.S. In general, the recurring disadvantage to the U.S. is damage to the national security. U.S.-designed equipment, especially when produced abroad, can be used for purposes inconsistent with American security interests. Valuable technological secrets can be easily lost to hostile powers through inadequate security measures or the overthrow of recipient governments. Raymond Vernon, of Harvard University, notes, "Military planners in any nation have to recognize that, when allies fall out, all facilities located in any country are wholly at the service of that country."[45] In both world wars, for example, subsidiaries of allied firms on enemy soil conscientiously produced armaments for the enemy's industry.[46] When these production facilities are actually owned by hostile governments, there is a total loss of U.S. control. Once technology falls into unfriendly hands, it is almost impossible to control its application and distribution. On the other hand, the transfer of military technology to third world countries often leads to deep and lasting American involvement in the recipient's arms industry, implying a U.S. commitment far exceeding that represented by traditional arms transfers.[47] The obvious implication is that technology transfers may result in U.S. support for regimes of dubious stability or questionable intentions. These problems are multiplied when the technology is distributed without

government knowled . and thus, lacks the safeguards necessary to protect advanced technological secrets. In addition, it is clear that the major U.S. defense contractors have become dangerously dependent upon foreign sales. This dependency could have significant long-range economic, strategic, and political reprecussions. These problems stem from the fact that as U.S. corporations have become multinational, they have begun to act independently of the U.S. government. By simply leaving U.S. jurisdiction, their freedom to interact with foreign governments and choose which products they will produce becomes greatly expanded. A final problem concerns the difficulty in controlling arms transfers at the international level. As more nations possess the technology to produce arms, it will be difficult it will be to get all countries that sell arms to limit the world's supply of weapons.[48]

A problem directly related to coproduction arrangements comes into play when U.S. military equipment or components are produced abroad or used by both the recipient country and the U.S. military. Currently, the present trend is toward U.S. dependency on foreign production of critical military parts and materials.[49] Especially in the case of electrical and electronic components, production and assembly abroad is cheap and thus, widespread. It is a basic tenet that the U.S. defense industry must be self-sufficient, and production

abroad gravely threatens national security. If critical parts cannot be delivered to the U.S. due to transportation problems o· intentional actions on the part of the producing country, U.S. military efforts may be hindered at crucial times. The D.O.D. has begun to express concern that the U.S. is becoming too dependent on this foreign production of U.S. military hardware, and it has isolated the greater involvement in coproduction arrangements as a major cause of this dependency.[50] Historically, even wholly owned foreign subsidiaries of American corporations have been unable to act with independence from the host country in times of American involvement in war. There is clearly a conflict between the desire to insure the viability of American arms producer with the comparatively low prices that the U.S. government pays and the desire for self-sufficiency.

The second problem with technology transfers is that they threaten to erode America's competitive advantage in the development and application of sophisticated new technologies. This advantage is crucial since it enables the U.S. to remain competitive in both the commercial and military spheres. Michael Klare assesses the current situation.

> ...until now, U.S. officials have largely ignored the policy implications of arms-technology exports, the growing scope and visibility of such programs will make it

> increasingly difficult to do so in the future. Already many economists are worried that past or present transfers of U.S. arms-making know-how have diminished the technological lead of U.S. industries and enhanced the competitive position of foreign producers.[51]

It is clear that sales of military technology enable recipient countries to compete with the U.S. in both the sale of advanced military equipment and commercial products. Since the military sector is often the first to integrate new computer, electronic, and manufacturing technologies, it is the most likely source of technological spin-offs for civilian industries. Ever since U.S. firms began selling their most advanced designs and production techniques, the comparative advantage of America has shifted outward. As more technology escapes, Japanese, French, and West German companies will introduce products into commercial markets that incorporate American technologies and compete with American goods. Clearly, the extent and rate of technology transfers is increasingly threatening and disruptive to the U.S. position in the world economy.[52] Furthermore, the multinationalization of the U.S. defense industry poses a unique challenge to U.S. security. Vernon explains.

> Many multinational enterprises are important producers of key military hardware. The capacity of such enterprises to communicate

> complex ideas among their affiliates has increased the difficult of sealing in technical ideas at the borders of the U.S.[53]

Regulation of these subsidiaries by the U.S. government is nearly impossible. In many instances, these corporations have become independent of any one country's control. The result is that technologies may no longer have a national origin. A new development will be owned and controlled by an MNC: an independent entity in international relations, with the right to sell the technology to any country or institution in the world.

In the case of third world countries, the transfer of manufacturing technology and military equipment also threatens U.S. security. Gansler explains the problem in the context of North-South relations.

> The once bipolar powr structure is now multipolar, and less-developed countries are wielding the power of oil and scarce materials. The long-standing American supremacy in technology is dwindling. Large U.S. defense-oriented corporations are exhibiting a transnational mentality.[54]

It is the greatly strengthened negotiating position of oil-rich countries and the instability of oil-producing regions that has led to this uncontrolled transfer of

military technology. In addition, U.S. companies are often willing to give away more and better technology simply to insure that they can earn lucrative contracts.[55] Companies that can't compete efectively often win foreign sales awards because of their willingness to give away more technology than a competitor. More surprising is the fact that the technology that American arms suppliers are currently supplying to Middle Eastern governments is, in some cases, technically more sophisticated than what the U.S. has or can afford for its own forces. For example, in the 1970s, Iran was buying a version of the DD983 destroyer that was more advanced than the American version.[56] The key problem involved in technology transfers is that the decision to transfer is irreversible. Once released, technology can't be controlled and it gives the recipient a base for many subsequent gains.[57]

Clearly, the transfer of military technology enables the recipient country, in many cases, to produce arms in unlimited quantities. Many of the disadvantages of transferring military technology are a result of the removal of valuable technology from the control of both the U.S. government and U.S. corporations. The multinational armament corporations have been more than willing to distribute this valuable technology through coproduction arrangements in order to maximize profits and clients. Even when it is not

in a company's best long term interest to release unique technologies, the immediate economic benefits often result in industry participation. Additionally, many MNCs mistakenly believe that they will retain control of their technology and patents when participating in coproduction arrangements. The semi-industrial nations like Argentina, Brazil, Mexico, South Korea, India, and Israel are the most likely countries to attract coproduction agreements with American defense contractors. This is primarily due to the fact that these countries can afford the necessary investment. Armament corporations often choose to enter into coproduction agreements because they can eliminate their competition for customers when they become actively involved in a particular country's defense establishment.[58] These advanced developing countries have launched plans for indigenous military production because it both enhances their prestige and provides them with military self-sufficiency. In addition, indigenous production is perceived as means of speeding up development.[59] The elites in many developing countries believe that major high technology enterprises will serve as a training ground for future scientists and engineers. In the 1970's, the Shah of Iran justified major arms transfers on these grounds.[60] The result was that the civilian sector never developed and was possibly even hurt because of diversion of resources to the military industries. It is

speculated that the Shah was overthouwn partially because of this neglect of civilian needs. The obvious conclusion is that military technology may not actually contribute to economic development and may instead damage its prospects.

The major problem with indigenous production is the fact that U.S. technology can be retransferred to other countries without U.S. government or industry approval. On the other hand, some have argued that indigenous production may actually result in decreased arms transfers, or even serve as an alternative to the procurement of nuclear weapons. However, empirical data disproves these claims. LDC arms producers are among the largest importers of arms, and technical capabilites obtained from military technology actually enable LDCs to develop the capacity to produce and deploy nuclear weapons.[61] Finally, the Indian experience proves that indigenous production is also more expensive than the importation of similar arms.[62] Indigenous production obviously can only result from those technology transfers that give a recipient nation the capacity to produce a complete or almost complete weapon. In these cases, the technology in question could have damaging reprecussions if third countries can take advantage of it.

Obviously, the initial problem is that with more arms producers there will be more weapons produced. Michael Klare writes.

> Many specialists believe that technology transfers are potentially far more destabilizing than regular arms transfers, since many recipients of such technology are beginning to export arms on their own - thus producing a geometric increase in the world's total supply of war-making capabilities.[63]

As transfers of U.S. technology allow other countries to produce and export arms, U.S. foreign policy can be easily frustrated. Foreign governments can and have routed U.S.-designed or U.S.-equipped military hardware to government deemed ineligible for direct transfers because of human rights violations, or their support of terrorism. For example, Argentina, Chile, Uruguay, South Africa, Iraq, and Libya have received U.S.-designed technology that has been produced or assembled in other countries.[64] In addition, U.S. defense firms have complained that Israel has incorporated U.S.-orign technology into weapons sold to third world countries that normally buy from the U.S. Klare argues that this pattern is likely to be repeated in other countries like Argentina, Brazil, and South Korea.[65] Even in the case of transfers to NATO, enhanced domestic arms production capability in Europe creates new incentives to increase military exports, thus enlarging the flood of sophisticated arms into the third world.[66] Furthermore, MNCs play a major role in retransferring embargoed items. Divisions of MNCs operating in Singapore, Lebanon, Austria, Sweeden, and

Switzerland have diverted military technology to third world countries which can't buy weapons' technology through rmal channels. Gansler notes that "controls over these third country passthoughs are virtually useless."[67] Thus, even when recipient countries refuse to retransfer U.S. technology, the U.S. MNC involved in a coproduction or licensing arrangement will often sell to a blacklisted client through hidden channels. Finally, any effort at controlling arms on an international basis will be useless as long as retransfers continue. Klare concludes.

> Ultimately, however, unilateral restraints . . . will prove futile if other owers continue to export sophisticated technology to fledgling producers - who can then collaborate with other nations in the future diffusion of arms-making capabilities.[68]

The third major problem associated with escaping U.S. technology is that, in the case of transfers to Western Europe and Japan, they contribute to commercial developments that hurt U.S. competitive advantages in international civilian markets. Increasingly, Western Europe and Japan have emphasized the acquisition of front-end military technologies in order to enhance the productivity and sophsitication of their own civilian industries.[69] Analysts maintain that there is a relatively high degree of

"spill-over" or "spin-off" from military innovations to the civilian sector. It is estimated that twenty to thirty-five percent of all military inventions have civilian applications.[70] In the case of developed countries, these by-products of military technology are very likely to be exploited for economic gain since existing industries can use this sophisticated technology to remain competitive or gain important advantages in international markets. Especially in the aerospace industry, there is a only a vague borderline between what constitutes a military or a civilian technology. European commercial motives in seeking the cooperation of U.S. firms and U.S. technology for military projects are becoming clearer as Europe seeks these arrangements only when developing the most advanced and sophisticated systems.[71] Likewise, Japan has built on the experience and the technology gained through military coproduction projects to develop its civilian aircraft industry as well as other high technology export industries. The loss of America's technological supremacy obviously endangers America's high technology industries.

Fourth, a major danger to the U.S. resulting from technology transfers is Soviet acquisition of this sophisticated military technology. Since U.S. government regulations prevent overt transfers of military technology, transfers to Eastern bloc nations are usually disguised as

commercial in nature, or are acquired through retransfers from other countries or subsidiaries of American MNCs. In the 1970's, as East-West tensions were relaxed and trade in technology was encouraged, the Soviet Union neutralized the United States' quantitative lead in most classes of nuclear and conventional weapons, and made significant challenges to our qualitative, technological lead. There is documented proof that technology that the U.S. has sold the Soviet Union has been used to produce tanks, armored cars, spy satellites, air defense equipment, and even nuclear missile components. Recent technology transfers have directly led to increased ICBM accuracy, ABM advances, and developments in anti-submarine warfare.[72] Most technologies, like those involving computers, electronics, and precision manufacturing equipment are procured in the form of components for weapons systems or as manufacturing equipment used to produce these systems. These technologies are the easiest to hide as civilian purchases and are the most important to long-term Soviet military development. Gansler writes.

> ...It has frequently been difficult to distinguish between military and commercial applications of the equipment and technology requested by Communist countries. Because of this ambiguity, there has been a significant "bending" in the area of military equipment export controls.[73]

Furthermore, the Soviet Union is able to obtain this technology through European governments that have previously purchased it from the U.S., or from subsidiaries of U.S. corporations located in Europe and third world countries. Nye and Rubin note that the Soviet government is able to play off corporate competitors against each other and that the liberal Western governments are often poorly placed to coordinate and enforce corporate behavior, and thus to insure that the home government's interests are adequately represented.[74] In addition, European countries like France and Italy that have sizeable communist parties are susceptible to industrial espionage. Third world countries that turn communist "overnight" are also, prime sources of Western technology. Furthermore, U.S. officials specifically fear leakage from coproduction arrangements. A cabinet official admitted in 1979 that "we are concerned that advanced technology may fall into the hands of our adversaries through coproduction of sophisticated weapons."[75] Once a technology leaves U.S. control it is usually a simple task for the Soviet Union to acquire it.

The implications of these transfers include their contribution to Soviet qualitative military advances which, if allowed to continue, could destabilize the current balance of power. In the near future our technological lead may evaporate and threats of conflict may become real as we watch

the Soviet Union match us technologically while overwhelming us quantitatively. This could only result in a major alteration of the balance of forces and a situation of comparative instability. Presently, the Soviets are able to get American technology and incorporate it into their military structure quicker than ever, while our lead time is rapidly decreasing. William Perry observed Soviet advances in conventional weaponry.

> ...the Soviet Union has been out-producing the United States by more than two to one in almost all categories of conventional weapons. . . With their growing technological sophistication, the Soviets have not only been able to ovewhelm the United States in numbers of weapons, but to compete in performance as well.[76]

Likewise, the credibility of our nuclear deterrent is at stake. The C.I.A. delineated the facts in its 1982 report.

> The U.S. and its Allies traditionally have relied on the technological superiority of their weapons to preserve a credible counterforce to the quantitative superiority of the Warsaw Pact. But that technical superiority is eroding as the Soviet Union and its Allies introduce more and more sophisticated weaponry - weapons that all too often are manufactured with the direct help of Western technology.[77]

By giving our enemy the capability to gain a strategic advantage, we are forcing ourselves to step up the arms race rather than limit it. The more American technology the Soviet Union gets the more we are forced to build and pay for new highly destructive weapons to guarantee our qualitative lead.

A more imminent threat stemming from technology transfers is that of increased Soviet expansionism. Historically, the Soviet Union expands when it thinks it will encounter the least resistance. Colin Gray of the Hudson Institute explains the relation of the balance of militarly forces to Soviet adventurism.

> The Soviet investment in military high technology has not been principally for the purpose of preparing for putative victory in the big European theater war, leading to central nuclear war. Instead, it has been for the prupose of checkmating extant American/NATO military advantages, thereby leaving the Soviet Union free to advance in regions where there are no clear spheres of influence. [78]

Carl Gersham predicts the effects of a disadvantageous balance of forces.

> ...it has become clear that the relative restrain which the Soviets showed at an earlier period was not an inherent aspect of their

> policy but a condition imposed by circumstance, chiefly an unfavorable balance of forces. As the balance has changed, so have the calculations of risk, with the result that future Afghanistans have become more likely.[79]

Additionally, technology transfers save the U.S.S.R. research, development, and manufacturing money that otherwise would have to be diverted from the military sector. With these resources available, the Soviet Union can afford to carry out expensive expansionary endeavors. The implications of even limited technology transfers are noted by Henry Nau.

> Even a small contribution to Soviet capabilities when measured against comparable contributions to U.S. capabilities may constitute a giant step forward in terms of Soviet capabilities alone.[80]

B. Disadvantages to the Third World

The second class of disadvantages primarily affects third world recipients of American technology. The most obvious problems result from the fact that advanced weapons are being transferred to unstable regimes in unstable regions of the world. While this can occur with any arms transfer, it is multiplied by the freedom given to LDCs when they acquire the technology necessarily to produce weapons. Arms are made to fight wars with, and more often than not,

military technology that the U.S. transfers to third world countries is used precisely for that purpose. Empirical data have shown that the increased availability of weapons increases their use and that curtailing arms transfers decreases the risk of war.[81] The primary motive for acquiring weapons is competition with rival neighbors. As one country acquires an offensive capability that threatens another, the second country responds by acquiring arms in order to balance the power of the first country, or in order to retain its initial advantage. The result is an arms race which means increased tensions, and thus, an increase likelihood of war in which the magnitude of destruction will naturally be greater.[82] Geoffrey Kemp, Professor of International Relations at Tufts University notes.

> It is apparent that the "arms race syndrome" often results in the spread of more arms around the globe, an increase in the latent potential violence in the international system and/or regional subsystem without increased (and sometimes decreased) security.[83]

Today, there are many regional arms races in progress that are threatening to become full-scale wars with international ramifications because the U.S. is fueling these conflicts with military technology.

Additionally, weapons in and of themselves are dangerous when in the hands of potentially hostile and aggressive powers. William J. Perry the Assistant Secretary of State for Near Eastern and South Asian Affairs testified in 1982.

> Over any long period of time, clearly the accumulation of large numbers of weapons by potential adversaries has the logic of the outbreak of war.[84]

Arms kill, destroy property, ruin cities, and threaten the existence of nation states. Unfortunately, arms sales also, often commit the U.S. to supply more arms, or to deploy troops if full-scale hostilities involving recipient countries erupt. Furthermore, given the character of the U.S.-Soviet rivalry, a war involving countries where each great power backs a side, carries with it the risk of superpower involvement and confrontation. Barry Blechman, a Senior Associate at the Carnegie Endowment for International Peace wrote that arms often "serve as the leading edge of great power involvement in regional conflicts." "Arms transfers to third world countries," he notes, "have occasionally led to a serious risk of military conflict

between the two superpowers."[85] Thus, instead of preventing Soviet meddling in the third world, technology transfers may encourage Soviet involvement in regional conflicts.

The aquisition of military technology can also lead to immediate threats to world stability. Military technology, its producers, and proponents profoundly affect levels of military tension. Tuomi explains.

> It is no exaggeration to say that the present wave of militarization is driven by the development of military technology which is supported by various political, economic, and bureaucratic interests.[86]

The recent increase in the sophistication of third world military forces is due to the economic and political motives of the U.S. government and the MNCs that produce weapons' technology. In many cases, the foreign activities of American MNCs operating abroad have been soley responsible for actual conflicts. Since World War II, there have been seven major armed conflicts and four non-major incidents that were associated with the activities of multinational firms. These include C.I.A. coups in Iran (1953), Guatemala (1954 and 1963), and Bolivia (1971), as well as the Suez crisis, the Nigerian Civil War, Algerian conflicts, and U.S. policies toward Cuba in the 1960's.[87] American MNCs have historically intervened in the politics and political

conflicts of their countries both on their own and as agents of the American government. In these former cases, these corporations were not even military in nature. The point is that they used their economic and political position within the host country to insure policies and outcomes that were favorable to their business interests and to the U.S. government's political interest. An additional threat emanating from technology transfers is their propensity to lead to the aquisition of nuclear weapons. Tuomi notes.

> ...some countries with large arms imports and a strong policy of self-reliance in conventional arms are also trying to get nuclear capability. The conclusion is that once the high-technology military capability is sought, different armament options tend to compiement rather than exclude each other.[88]

The bottom line is that it is not prudent policy to sell advanced weapons to unstable governments in unstable regions. Former Pentagon analyst Dale Tahtinen concludes.

> ...the possession of highly sophisticated weapons by potential belligerents in explosive situations enhances the possibility that disagreements will be settled by fighting instead of diplomacy.[89]

Thus, it is best to keep the U.S. government and U.S. corporations out of the military structures of other countries.

Another relevant issue concerns the effects of massive inputs of military technology on the structure and development of LDC economies. In the preceeding section, it was argued that coproduction arrangements often bring with them infrastructure that is necessary to development. However, it was also made clear that large capital requirements are needed in order to take advantage of potential spin-offs, and that more often than not, military technology's infrastructure remains isolated from the rest of the economy. In fact, importation and integration of military technology often diverts resources from economic development as well as contributing to economic and political irregularities. The heavy borrowing that is necessary to acquire sophisticated technology and to maintain and establish production facilities limits the development potential of third world economies. Tuomi argues that "the dependence on foreign military technology perpetuates and reproduces other forms of economic, technological, and in the last instance, political dependence."[90] The cost of establishing an indigeneous production capability often exceeds projections and can easily lock LDC governments into what is often a futile attempt at rapid, import-based,

development. Without accompanying developments in commercial industry and without any immediate capacity for export, military production can lay an impossible financial burden on the already debt prone LDC economies. Furthermore, technology transfers result in harmful foreign dependence and foreign penetration of undeveloped countries. For example, in Saudia Arabia, national culture and traditions are in danger of being destroyed because the penetration of modern technology into it has by far exceeded the technological capacity of the country.[7] In many cases, the internal stability and unity of countries in strategic regions of the world can be threatened by exposure to technology and its modern by-products.

In addition, the MNCs will usually operate though the military establishments of these third world countries when concluding transfer and production agreements. These connections usually remain strong even after the deals are concluded and production facilities are in place. These links to LDC power centers and elites give the MNCs enormous influence in third world economies and politics. Mary Kaldor, editor of The World Military Order, writes.

> ...the military seems to meet the political requirements of international capital under these troubled circumstances almost better than any other institution. A powerful, relatively autonomous state apparatus - buttressed by military coercion - provides a framework of

> stability and predictability within which it is relatively easy for multinational capital to operate.[9]

In general, the military establishments of LDCs are more predictable and more efficient to work with than the government of these countries. Therefore, MNCs try to insure their survival and terms with host governments by integrating top military officials into their corporate structures. In the same way that the influence of MNCs can change the power structure of LDCs, it increases - through arms and political support - the military establishment's size, autonomy, and power, relative to other ruling factions. Therefore, in the final analysis, purchases of military technology and hardware often hurt prospects for programs and projects that could raise the overall living standards of impovershed nations by diverting resources to the military sector. Additionally, as the military becomes stronger, the chance that it will overthrow the civilian government becomes greater. In general, these military governments tend to be less concerned with human rights, poverty, and education than those governments that are made up of civilians. Finally, it is important to note that the conception of spin-offs, as discussed in reference to transfers to developed countries, is inapplicable in most developing countries because they do not have the coherent industrial and economic structures

necessary to adapt military technology to civilian needs.[93] Instead, the likely result is a dual-economy where military production diverts resources from development that would be beneficial to the civilian populations.

The final drawback of military technology transfers may be the most controversial. There is little doubt that the transfer of weapons and especially the technology needed to produce them gives both the MNCs and the U.S. government at least a modicum of political leverage over certain LDC actions. It has already been established that in those cases where governments who have received U.S. technology are overthrown by less cooperative regimes, or where technology is either intentionally or unintentionally transferred to recipients who the U.S. did not intend to be recipients, the U.S. loses much of the leverage that technology transfers have historically afforded. However, as long as governments in power rely on U.S. support and need U.S. technology, some leverage is gained. For example, the U.S. requires certain countries to meet human rights standards or to allow the U.S. access to military bases as a prerequisite for continued transfers of technology. The reason for controversy is that, in many cases, the extraordinary influence over LDC politics that the U.S. government and U.S.-based MNCs have, can hurt the U.S. in a variety of ways. Tuomi argues that coproduction creates an enormous amount of influence for the

U.S. compared to the influence gained through traditional arms sales. She notes that "this naturally creates a transnational production network which facilitates further integration of production on an international scale and tends to increase U.S. political and economic leverage."[94] This leverage probably benefits U.S. foreign policy in some cases but it is certainly damaging to LDC autonomy. LDC governments find it difficult to pursue programs aimed at self-sufficiency when outside governments and companies are interfering in political processes and economic development schemes. In addition, U.S. corporations have been able to easily translate their economic power into effective political influence. MNCs have, in the past, hired private armies, bribed host country politicians and officials, made strategic contributions, and have generally tried to influence the prevailing climate of opinions to meet their needs.[95] The potential for interference by corporations that control important segments of LDC military production is enormous.

One of the most illustrative examples of U.S. technology transfers to third world governments by MNCs involves the American experience in Iran. In the 1970's, as the U.S. tried to establish a base in the Persian Gulf, a strong link rapidly developed between the posture of the U.S. defense industry and the government of the Shah of Iran. In

Iran, the transfer of military technology was the pacemaker for the entry of MNCs and the establishment of industrial facilities in the Iranian economy.[96] Although this military development seemed to benefit education, health, and the Iranian economy, it produced a number of developments that were inconsistent with Iranian traditions and culture. It is now obvious that the U.S.-backed armament program of the late Shah produced economic dislocations and popular resentments that ultimately contributed to his downfall.[97] In addition, Iran's arms purchasing influenced arms programs in the U.S. Certain weapons systems only came into production with Iranian pressure and Iranian money. For example, Iran stopped the abandonment of the Condor Missile program singlehandedly.[98] In a 1975 report, the U.S. Comptroller General said that the defense capability of the U.S. had been endangered by the assignment of U.S. military specialists to the planning and construction of the Iranian military apparatus.[99] In 1976, the Shah provided $28 million of advanced payments to save the Grumman Corporation.[100] Grumman, one of the major U.S. defense contractors, was on the brink of closing down, despite massive U.S. government subsidies. Thus, technology transfers pose the additional danger of giving foriegn governments too much influence over the activities and survival of the American armaments industry. The Iranian experience shows the dangers that

technology transfers pose to LDC governments, societies, and stability, as well as to American security and foreign policy.

IV. CONCLUSION

Technology transfers have clearly become an integral part of America's leading export industry, the armament industry. As European exporters have begun to compete with the American industry, and as U.S. defense contractors have found it necessary to search for new markets, technology transfers, in the form of coproduction agreements and the sale of the technology needed to produce weapons, have become the new strategy of American MNCs competing in the international arms trade. Technology transfers have revolutionized the arms trade by allowing the transfer of the capability to reproduce a weapon virtually an unlimited number of times. In other words, the control over how many weapons a given country will receive has been removed from the supplying country. Likewise, technology transfers have removed the control of military technology from the nation state and have given it to the MNCs which can act in an independent capacity by circumventing governmental controls. Nevertheless, the U.S. government has recognized the economic benefits and necessities of these technology transfers, as

well as the political advantages of arms transfers, in general. As a result, in many cases, the government and the MNCs act in concert to promote technology transfers. The drawbacks of technology transfers, however, have been largely ignored by policy makers and the MNCs. This paper has, primarily, served to show that the potential long-term disadvantages of transferring military technology should dictate future policy decisions. Long-term priorities point to the necessity of withholding sophisticated military technology from undeveloped countries, the Soviet Union, and any nation that may disrupt U.S. foreign policy by retransferrring valuable American technology. Clearly, the U.S. national security, foreign policy, and economic well-being are at stake. However, it must be recognized that the stability of many third world countries, as well as the entire system of nation states are also jeopardized by the unregulated activities of MNCs.

Although it may be beneficial to enter into coproduction agreements with our NATO allies, or to transfer technologies that have no direct military applications to the Soviet Union, most of these transfers should be reassessed. The laws and policies of the status quo must be reformed in order to specifically address this problem. Klare concludes.

> Clearly, existing congressional and presidential policies on arms-technology exports are woefully inadequate. What is needed, in their place, is a comprehensive policy on coproduction and licensing that provides clear and precise guidelines on when, and under what specified circumstances, agreements of this type should be concluded. [101]

There must be separate guidleines for reviewing technology transfers, and they must be administered outside the executive agencies that have traditionally advocated transfers or ignored relevant guidelines. If this supervision is separate from traditional arms transfers, and addresses the problems of dual-use technolgies (military and civilian applicialtions) and the activities of MNCs, there should be significant improvements. It has been suggested that new guidelines should prohibit any technology transfer that has the potential to seriously damage the economic health of the U.S.; undermines arms control, human rights, or development policy of the U.S.; or contributes to regional arms races or military adventurism.[102] These criteria provide a good start for the development of new regulations. Specific regulations must also address the activities of foreign subsidiaries of American MNCs. The only feasible method of control is to hold the parent corporation, based in the U.S., wholly repsonsible for the activities of its subsidiaries. However, it must be recognized that the

existence of MNCs and the decline of the nation state's regulatory power makes a complete solution to the technology transfer impossible. It is clear that the transfer of military technology has become an inherent feature of international trade and foreign policy in the world system. Nevertheless, the recognition of the disadvantages of technology transfers and the enactment of effective guidelines and/or regulations should, at least, reduce the flow of the most dangerous technology.

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